Question 1

This innovative Internet-based science and mathematics module utilized the dynamics of continuously updated "real time" data, the integration of quantitative data analysis, engaging hands-on activities and the use of remote data. We sent a computer-generated imaginative and informative package to international collaborative partners. We contacted a local port's Ship Schedule Coordinator who supplied us with the shipping route and call letters of ships traveling to the countries we were interested in. We sent the package to the collaborative schools as we all tracked the ship's voyage on a daily basis to see when it would arrive at its destinations.

By following our web site format, students located the ship via the Internet at the sites which tracked the position of ocean going vessels through the use of satellites and e-mail. Students pinpointed the vessel's location, determined latitude and longitude, and calculated distance, speed, and direction. Analysis of ocean weather and wave height helped students identify any storm activity in the vessel's vicinity. This allowed the students to make accurate predictions regarding the ship's position, speed, and direction.

We have developed an Internet based practice designed to achieve the following objectives:

- studying latitude and longitude, speed and direction of a ship
- using real-time satellite data from maritime buoys
- organizing, analyzing and plotting data
- predicting distance and port of destination
- gathering weather data for analysis
- develop communication and writing techniques via e-mail

High student achievement was evident in the results of the portfolio objectives. Students were enthusiastic learners in a language rich environment. Higher level thinking skills were evident in the use of technology and extension activities completed by each grade level. This Internet project has added new dimensions for teaching and learning. It has broadened perspectives in virtually every subject area and allowed for authentic assessment through the use of portfolios and journals. The students have the world literally at their fingertips and they are paving the way for future technology integration, which will prepare them for the work force of the new millennium.

By accessing our web site, the activity can be easily replicated. We have provided a general overview, teacher preparation and materials, and necessary web sites, which can be selected by clicking on the LINK buttons. Since the practice can be completed singularly or interdependently, teachers may select any vessel and keep track of the course and heading.

Question 2

The diversity of our school population called for the development of practices that addressed a range of needs. We chose to include our entire student body consisting of 1,100 culturally mixed students. Our students have had limited exposure to extensive global experiences and this practice addressed these needs by allowing the students to study the world in spatial terms, Social Studies Standard 6.7. The Internet, a unique and compelling tool, gave the students a doorway to the globe and brought the world into the classroom. Through the Internet, the students attained an understanding of abstract concepts, which implemented the Cross-Content Workplace Readiness Standards 2 and 3. By plotting the vessel's daily position on a wall map and frequent analysis of changing conditions, students observed the connection of real-time data with the ship's progress, which integrated the Language Arts Literacy Standard 3.5.

The practice synthesized many curriculum areas as stated in the objectives and merged the New Jersey Core Curriculum Standards through the use of technology, critical thinking, decision-making and problem-solving skills as stated in the Mathematics Standards 4.1, 4.5, 4.9, 4.10, 4.12. By studying and analyzing the web site charts and maps, weather phenomena, and interpreting data, students addressed the Science Standards 5.2, 5.4, and 5.5

This project raised the expectation level and genuine understanding for students by fostering engaged, active learning and achievement for all. This practice focused on students empowerment through student-center projects, provided a vehicle for personal expression and reporting, and put the learner at the center of educational practice.

Question 3

Through collaboration of planning and training for this project amongst teachers, connections across subject areas were established to create a true interdisciplinary and team-teaching initiative. With prepared teacher packets, the classes received preliminary instruction to acquaint them with the objective skills areas, developed fluidity and comfort with the Internet as well as adeptness with speed formulas, data entry, predicting and drawing conclusions.

The project employed the multiple intelligence strategies of Howard Gardner. Thus, a wide variety of assessments were utilized to meet the unique talents and individual learning styles of our students to truly assess their progress and understanding. Through journal entries, the children took responsibility and developed their own scenarios for the voyage. They predicted where the ship was headed based on the collected data from the Internet. Teachers monitored student's progress to make sure they were making appropriate connections and drawing relevant conclusions. Students in grades 4 - 8 checked the vessel's progress with each grade responsible for some portion of the total data required. Since this was a collaborative project, data accuracy was important and each grades' incisiveness depended on the information collected and entered by all. Student's entered their data directly onto the Daily Briefing Sheet located on our web site.

Part of the assessment process was to confirm student's predictions and determine the data's accuracy. The multi-leveled assessment process consisted of Daily Briefing Sheets, student prepared portfolios, student project evaluation sheets and faculty project evaluation sheets. The Daily Briefing Sheets were a compilation of data entered on a school wide basis. These sheets were analyzed for accuracy and predictions were checked by locating the ship on the Internet and evaluating the students prediction process. For the Student Portfolios, research was included on the countries of our collaborative schools such as information on imports, exports, languages, topographical data, customs and cultures. The teachers evaluated the Student Portfolios based on the following criteria: 1) Following directions in the appropriate sequence 2) Working in groups 3) Making good observations 4) Collecting and recording data 5) Predictions based on results and justification.

The final assessments consisted of Students Project Evaluations where they were asked to discuss their learning process, Internet techniques, and personal opinion regarding the project. Faculty Project Evaluations asked for a rating of the project based on their observation of student participation, enjoyment, and growth. The Development Team felt that the project was a success and that our school's journey was truly a *bon voyage.*